

KUCHEROV, L.T., elektromekhanik

Both-way trunk. Avtom. telen. i sviaz' 8 no.9:37 S '64.

(MIRA 17:10)

1. Lozovskaya distantziya Yuzhnoy dorogi.

L 36203-66 EWT(d)/FSS-2 RB
ACC NR: AP6011443

SOURCE CODE: UR/0109/66/011/004/0627/0631

32
B

AUTHOR: Kuchеров, L. V.

ORG: none

TITLE: Calculating the field strength of ultrashort radio waves undergoing super-refraction 6

SOURCE: Radiotekhnika i elektronika, v. 11, no. 4, 1966, 627-631

TOPIC TAGS: radio wave, VHF communication, superrefraction

ABSTRACT: A method is considered of calculating the field strength, for super-refraction cases, according to this formula: $V = \sqrt{1 + R^2 D^2 + 2 R D \cos\left(\frac{4\pi h_1' h_2'}{\lambda r} + 0\right)}$,

where R and θ are the modulus and phase of the Fresnel reflection factor, respectively; D is a coefficient allowing for the beam divergence upon reflection

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UDC: 621.371.562.41

L 36203-66

ACC NR: AP6011443

from the Earth's spherical surface; h_1' and h_2' are the reduced antenna heights. To allow for the superrefraction, the propagation over a flat Earth and specially reduced antenna heights (formulas given) are assumed. The divergence coefficient $D < 1$ for ordinary refraction, $D = 1$ for critical refraction, and $D > 1$ for superrefraction. A numerical example of calculating the attenuation factor vs. incident beam distance illustrates the method. Orig. art. has: 4 figures and 25 formulas.

SUB CODE: 17, 09 / SUBM DATE: 22Dec64 / ORIG REF: 007

Card 2/2 *ell*

KUCHEROV, N. I.

USSR/Geophysics
Atmosphere

Nov/Dec 1947

"Observations on the Dawn as Method of Sounding
Lower Layers of the Atmosphere," N. I. KucheroV,
24 pp

TA 57149
"Izv Akad Nauk SSSR, Ser Geograf i Geofiz" Vol XI,
No 6

Author discusses the astro-geometrical theory of
dawns and classifies various-type dawns. Describes
phenomenon known as "dawn streak." Shows that the
phenomenon of dawn is dependent on basic synoptic
conditions of the atmosphere. Observations of the
dawn can be used as method to sound lower parts of

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USSR/Geophysics (Contd)

Nov/Dec 1947

the atmosphere, and therefore are of interest from
the synoptic standpoint. Two color plates show
various types of dawns. Submitted by Academician
I. S. Leybenica, 25 Aug 1945.

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TIKHOV, G.A., redaktor; USANOVICH, M.I.; SUVOROV, N.I., kandidat biologicheskikh nauk, zamestitel' redaktora; KARIMOV, M.G., kandidat fiziko-matematicheskikh nauk; KUCHEROV, N.I., kandidat fiziko-matematicheskikh nauk; GORSHENIN, D.S.; FEDOROV, N.N., sekretar' redkollegii; ROROKINA, Z.P., tekhnicheskii redaktor. RZHONIKOVSKAYA, L.S., redaktor.

[Discussion on the topic: Principal achievements of the astrobotany sector and the problem of the possibility of life on other planets (September 25-27, 1952)] Diskussiya na temu: osnovnye dostizheniya sektora astrobotaniki i vopros o vozmozhnosti zhizni na drugikh planetakh (25-27 sentyabrya 1952 g.) Alma-Ata, Izd-vo Akademii nauk Kazakh.SSR. 1953. 167 p. (Akademiya nauk Kazakhskoi SSR, Alma-Ata, Sektor astrobotaniki. Trudy v.2) (MLRA 10:1)

1. Daystvitel'nyy chlen Akademii nauk Kazakhskoy SSR (for Tikhov).
 2. Chlen-korrespondent Akademii nauk Kazakhskoy SSR (for Usanovich).
 3. Otvetstvennyy sekretar' redaktsii zhurnala "Vestnik Akademii nauk Kazakhskoy SSR" (for Gorshenin).
 4. Referent fiziko-matematicheskogo otdeleniya Akademii nauk Kazakhskoy SSR (for Fedorov).
- (Life on other planets)

KUCHEROV, N.I.

Selecting the location for building a planetary observatory.
Trudy Sekt.astrobot. AN Kazakh.SSR. 1:73-83 '53. (MIRA 10:2)

(Astronomical observatories)

KUCHEROV, N.I.

Observations of Mars in 1950. Trudy Sekt. astrobot. AN
Kazakh.SSR 3:48-62 '55.

(MLRA 9:12)

(Mars (Planet))

KUCHEROV, N.I.

Observations of Mars in 1952. Trudy Sekt. astrobot. AN Kazakh.

SSR 3:63-76 '55.

(MLRA 9:12)

(Mars (Planet))

KUCHEROV, N.I., kandidat fiziko-matematicheskikh nauk.

The planet Mars as a possible bearer of life. Trudy Sekt.astrobot.
AN Kazakh.SSR 4:28-43 '55. (MLRA 9:12)
(Mars (Planot))

AVCHEROV, N. I.

KRISHTOFOVICH, A.N. [deceased]; L'VOV, V.Ye.; MARKOV, A.V., professor;
KOROL'EV, A.V.; GOLOSNIYSKIY, L.P.; OGORODNIKOV, K.F., professor;
NYGENSEN, M.S., professor; LOZIN-LOZINSKIY, L.K., professor;
VOROB'YEV, A.G., professor; KOZLOVA, K.I.; KAZEMOV, B.A.; SUSLOV,
A.K.; GIL'FREYKH, G.B.; VASIL'YEV, O.B.; LICHKOV, B.L., professor;
SYROMYATNIKOV; KUTYREVA, A.P.; KATTERFEL'D, G.H.; SYTINSKAYA, N.N.;
SHARONOV, V.V.; SUVOROV, N.I.; KUCHEROV, N.I.; TIKHOV, G.A.;
GORSHKOV, P.M.

Addresses by A.N.Krishtofovich and others. Trudy Sekt.astrobot.AN
Kazakh.SSR 4:68-157 '55. (MLRA 9:12)

(Mars (Planet))

KUCHEROV, N. I.

Visual observations of Mars during the opposition in 1954.

Biol. Abast. astrofiz. obser. no.20:29-40 '56.

(MLRA 9:12)

(Mars (Planet)--Opposition, 1954)

KUCHEROV, N.I.

Favorable opposition of Mars. Fiz.v shkola 16 no.4:6-13 JI-Ag '56.
(MIRA 9:9)

1.Leningrad, Glavnaya astronomicheskaya observatoriya Akademii
nauk SSSR.

(Mars (Planet)--Opposition, 1956)

KUCHEROV, N.I., kandidat fiziko-matematicheskikh nauk.

Opposition near perihelion. Nauka i zhizn' 23 no.8:46-48 Ag '56.
(Mars (Planet)--Opposition, 1956) (MIRA 9:9)

MEL'NIKOV, O.A., prof., otv.red.; OBUKHOV, A.M., red.; KOLCHANSKIY,
I.O., kand.fiz.-mat.nauk, red.; KUCHEROV, M.I., kand.fiz.-mat.
nauk, red.; BYSTROVA, N.V., kand.fiz.-mat.nauk, red.;
KALLISTRATOVA, M.A., red.; ZHUKOVA, L.N., red.; ZENDEL', M.Ye.,
tekh.n.red.

[Transactions of the Conference on the Study of the Scintillation
of Stars] Trudy Soveshchaniia po issledovaniyu mertsevaniia svezd.
Moscow, Izd-vo Acad.nauk SSSR, 1959. 263 p. (MIRA 13:1)

1. Soveshchaniye po issledovaniyu mertsevaniya svezd. Moscow,
1958. 2. Chlen-korrespondent AN SSSR (for Obukhov).
(Stars--Scintillation--Congresses)

Kuchanov N. I.

25-10-28/41

AUTHOR: Kuchanov, N. I., Candidate of Physico Mathematical Sciences
(Leningrad)

TITLE: The Discoveries on the Mars (Chto obnaruzhenno na Marse)

PERIODICAL: Nauka i Zhizn', 1957, ¹⁴# 10, pp 53-55 (USSR)

ABSTRACT: In 1956 the planet Mars was in opposition to the earth and had approached the earth within a distance of 56 million km. Observations disclosed that changeable weather with extremely strong winds and storms prevails in the southern hemisphere of Mars. This again might cause dust storms and the creation of yellow mists in the Mars atmosphere. An interesting special feature of Mars' last opposition to the earth was the presence of an intensive belt around the melting southern polar cap. There is a close connection between this belt and the hypothesis of Member-Correspondent of the USSR Academy of Sciences G. A. Tikhov concerning palaeobotany on the Mars. In 1956 it has been established that this belt changed its color from brown or red to green or bluish, a fact supporting the above-mentioned hypothesis. Moreover, observations showed that in 1956 a snow cap

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The Discoveries on the Mars

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covered the polar areas of Mars. The so-called "volcanic hypothesis", as suggested by the American astronomer MacLaughlin, claims all surface peculiarities of Mars to be of volcanic origin, but the research done during the opposition of the Mars to the earth in 1956 did not give any support to this theory.

AVAILABLE: Library of Congress

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1999/02

[illegible]

NOTE: This book is intended for astronauts. It may be of interest to payloads studying the atmosphere and designs of astronautical equipment.

CONTENTS: The book reports on the Organization of the Conference on the Study of Cellular Utilization, held in Moscow from June 12 to 25 June 1961. The Conference was organized by the International Council on ZEM and the Institute of Physics and the Academy of Sciences of the USSR. The book contains materials of 25 reports read at 13 sessions. Sessions treating cellular utilization and functioning of star lamps. Industrial reports deal with various and instruments of construction. The book contains reports of the observations which followed each session, and the materials adopted by the Conference. References follow Industrial Utilization. Summary: V. B. Akhmedov, V. I. Zhurav, and L. B. Pospelov. Institute of Physics of the Academy of Sciences of the USSR. Statements for the International Analysis of Systems

39. Goryunov, L. A., and M. B. Dima. [Three-layered semiconductor p-n junctions with a thin layer of hydrogen - boron]. *Sov. Radiotekhnika i Elektronika* 19: 1037-1040 (1974). (English transl. in *Radio Engng. Electron. Phys.*)

40. Goryunov, L. A., and M. B. Dima. [Stabilization of thermal currents of light

References

Robinson, R. A. [Dissertation] **State Polytetral Tautomerism in 1,2,3,4-Tetraallyl-5,6-Diphenyl-1,3,5-Triazine: The Effect of Diaporesis Size on the Host-Guest Frequency of Field Activation of the Ions Pore**

Abstract, V. L. How America Controlled the Import of L. A. Carter and
H. T. Green and the Affairs of L. A. Equivocal

James M. A.
James M. A.

Wm L. ELLERY, O. A.

RECEIVED DIRECTOR, JUNE 1968

Abstract

Mal'nev, G. A., A. G. Kishchik, and B. I. Esherman
and Yakovlev of Sov. Union Air Force. Journal of Astronautics
(Moscow)

Palomar, L. S. (Palomar astrophysical observatory AS 3000 - this
astronomical observatory AS 3000). Observations of the star Antelle-
les made at Palomar with the AAT-5 telescope

Davidson, A. B. [Puls Astronomical Observatory AS 1288]. Observations of the star Acetivision made at Pulney with the A75-7 Telescope

S/035/61/000/010/005/034
A(X)1/A101

3.5150

AUTHOR: Kucherov, N.I.

TITLE: Study of astroclimate of USSR

PERIODICAL: Referativnyy zhurnal. Astronomiya i Geodeziya, no. 10, 1961, 32-33, abstract 10A248 ("Tr. Soveshchaniya po issled. mertsaniya zvezd", 1958, Moscow-Leningrad, AN SSSR, 1959, 183-202, Discuss., 250-256)

TEXT: The author points out that relations of astroclimatic characteristics to meteorological, synoptic, and geographic conditions are of extreme importance. The first part of the work is of reviewing nature, then the method commonly employed in the USSR and instruments used in astroclimatic observations are described. The program of studying the astroclimate of individual regions of the USSR is laid down; the program is being carried out by expeditions of the Main Astronomical Observatory, AS USSR. All the expeditions are furnished with instruments of the same type A3T-7 (AZT-7) (D = 200 mm, F = 2 and 10 m). Observations consist in determining the following characteristics: 1) degree of blurring of diffraction images or quality of stellar images; 2) tremors of stellar images; 3) scintillations of stellar images. Observations performed by expedi-

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Study of astroclimate of USSR

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A001/A101

tions permitted a number of conclusions relevant to the nature of the astroclimate, namely: on the role of a region geography and origination of disturbances spoiling the stellar images, on changes in the quality of stellar images with zenith distances, etc. Astroclimatic data are compared for three stations: at Suворovo, Anapa and Pulkovo. The Anapa station produces the best in quality stellar images, as compared with the others. It is shown that at the Anapa and Suворovo stations, geography (relief) of the locality affects essentially the magnitude of images at different azimuths. A relation has been found between the turbulence angle in zenith and atmospheric pressure and relative humidity (for Pulkovo). It is proved once more that there exists a dependence between the image quality and meteorological characteristics of the elements. The author arrived at the conclusion that the image quality deteriorates with increasing zenith distance, but not always uniformly and to the same degree. The method of obtaining tracks of stars and their processing is described. The article is illustrated with graphs which show the comparison of observational results obtained in different expeditions. There are 8 references.

[Abstracter's note: Complete translation]

L. Zhukova, I. Aslanov

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KUCHEROV, N.I.; NEMIRO, A.A., prof., nauchnyy red.; VOROB'YEV, G.S.,
red. izd-va; GURDZHIYEVA, A.M., tekhn. red.

[Intrusion into space] Vtorzhenie v kosmos. Leningrad, Ob-vo
po rasprostraneniю polit. i nauchnykh znaniy RSFSR, 1961. 47 p.
(MIRA 15:2)

(Space flight)

KUCHEROV, N.I., prof. st. nauchn. sotrudnik

Future steps in the mastering of space. Nauka i tekhnika
13 no.11:1-2 N '61.

1. Glavna astronomicheskaya observatoriya pri AN na SSSR.

KUCHEROV, N., prof., st. nauchn sputrudnik

The earth in the sea of sun rays. Nauka i tekhn s mladesh
13 no.12:3-4 D '61.

1. Glavna astronomicheskaya observatoriya na Akademiyata na
nauki na SSSR.

3,1240 (2105, 2605, 1062)

S/026/61/000/005/002/003
D051/D113

AUTHOR: Kucherov, N. I.

TITLE: "Astroclimate"

PERIODICAL: Priroda, no. 5, 1961, 31-36

TEXT: In an article intended for the general reader, the author gives an explanation of the term "Astroclimate" and a summary of the problems arising for astronomical observation from the phenomena covered by this term. "Astroclimate" or "astroregime" is the total number of terrestrial atmospheric conditions affecting the star image in the telescope or similar optical receivers. Under ideal conditions, which cannot be obtained for observations from the Earth's surface, the telescope gives a diffraction pattern of the star in the form of an immobile bright circlet surrounded by a large number of rings of rapidly decreasing brightness. In practice, the image is often blurred or otherwise disfigured and displaced. This is due to factors always more or less present in the atmosphere, such as turbulent air flow, transparency, cloudiness, winds, humidity etc.. The idea of an ideal image, however, proves very useful, because it can be taken as a standard for differentiating "degrees of blurring" with a telescope of a magnifying power

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not below the resolving one. Discussing the quality of astronomic images, the author distinguishes between three types of anomalies: blurring, including "pulsation" (change in form of the image); vibration (displacement of the image); scintillation (momentary change in brightness of the image), including also chromatic scintillation (change in color of the image). Turbulence has a blurring effect on the image, which depends on the intensity of the length of the changing light wave and on the relative dimensions of the objective aperture. In a case where there is a higher light intensity with a long wavelength, a small objective can "capture" from the wave front a sufficiently small section, for which the wave deformations will be inconsiderable and even invisible to the eye. If a larger objective is used for capturing a considerable part of the wave front, then the degree of blurring will also abruptly increase. All this refers to an immobile or slowly moving image, which can be followed by the observer's eye or the optical receiver. Vibration can affect the degree of blurring in the following way: if the vibration frequency is such that the receiver (eye, telescope or camera) will not follow the movements, this will result in a diffuse image. In the opposite case, the degree of blurring will be different for different moments. Under the latter conditions, the good pictures can be selected,

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e.g. for observations of the planets, the sun, and the moon. Scintillation is due to the constant change of the wave front and the involved continuous deflection of the rays. The eye receives sometimes more and sometimes less light and this is noticed as a change in brightness or scintillation of the star. Scintillation of the star considerably increases with its approach to the horizon. This is due to the passage of the rays through an atmosphere of increased thickness and their higher deflection. The degree of scintillation depends on telescope aperture, turbulence and distance from the turbulent layer. The shorter the diameter of the objective, the more pronounced will be the scintillation of the stars. Another factor affecting the image is dispersion, which occurs particularly in the thick layers of the atmosphere near the horizon. The variously combining monochromatic rays present the star to the observer's eye in different, rapidly-changing colors. This is the phenomenon of chromatic scintillation. The author also gives a short survey of the presently used methods of determining astroclimatic indices. The blurring of diffracted star images is often evaluated by means of an astronomic instrument with an objective diameter of not less than 100 mm. The effects of turbulence can be largely eliminated by carrying out observations during calm weather, keeping the camera shutter closed until

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"Astroclimate"

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the instrument ceases vibrating and leaving the instrument untouched during the photographic process. During the latter the time mechanism will be stopped. Scintillation is observed at present also by electrophotometric means. A star image obtained by the telescope is focused onto the grid of an electrophotometer and is then projected through a lens onto the cathode of a photomultiplier. Brightness change in the light emitted by the star causes corresponding changes in the current of the photomultiplier, whose signals after amplification pass to the screen of an oscillograph, where they are photographically recorded on film. The geographical conditions of the locality of observation can also influence the quality of the image, inasmuch as they can be responsible for turbulence of the atmosphere. This was confirmed by observations carried out by several teams from 1956 to 1957 at the Glavnaya Astronomicheskaya Observatoriya Akademii Nauk SSSR (Main Astronomical Observatory of the USSR Academy of Sciences). Unevenness of the relief of a locality and uneven heating of the Earth's surface do not favor the receipt of good images. In view of the importance of the effect of geographical conditions, the author recommends further investigations in this field. At the end of the article the author discusses the particularly close connection between meteorological phenomena and the image, which directly

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depends on them in quality. It is difficult to detect the effect of a single meteorological element, because for the most part it acts jointly with synoptical, geographical and other factors. Therefore, some scientists could not establish definite dependencies between the elements of the weather and the quality of the image, whereas other observers noticed a connection. In Pulkovo a comparison of atmospheric pressure and also of relative humidity with the magnitude of the angle of turbulence in the zenith showed the mutual dependence of these characteristics., which induced the author to draw the conclusion that with an increase in atmospheric pressure and relative humidity the quality of the images deteriorates. Observations carried out in Pulkovo and by an expedition of the Main Astronomical Observatory of the USSR Academy of Sciences in the Anapa vicinity further showed that with an increase in relative humidity, the vibration of the star images mostly diminishes. The author could not observe a connection between vibration and scintillation of the images, as was confirmed by observations made in the U.S.A. A very important problem is the determination of atmospheric layers which cause vibration of the star images. It follows from the author's observations that these are the lower atmospheric layers. When the atmosphere is dusty or hazy, the images are more stationary; a light film of clouds

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also calms the images. Consequently, air "lenses" disturbing the regular path of the ray must be somewhere in the lower atmosphere. American scientists such as Gifford, Johnson, and Wilson consider that image vibration is produced by layers located at about 100 m altitude. Individual nonuniformities in the atmosphere cause scintillation and pulsation, but do not change the sharpness of the picture. Observations revealed that scintillation is connected with the amount of water vapor in the atmosphere; the more vapor, the more pronounced will be the scintillation. Moreover, scintillation also increases prior to the approach of a cyclone. There are 4 figures.

ASSOCIATION: Glavnaya astronomicheskaya observatoriya Akademii nauk SSSR
(Main Astronomical Observatory, Academy of Sciences, USSR),
Pulkovo.

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KUCHEROV, N. I.

Gavriil Adrianovich Tikhov; obituary. Izv. GAO 22 no.2:2-5
'61. (MIRA 15:10)

(Tikhov, Gavriil Adrianovich, 1875-1960)

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ACCESSION NR: AR3002043

S/0269/63/000/005/0028/0028

SOURCE: RZh. Astronomiya. Otdel'nyy vypusk. Abs. 5.51.279

BB

AUTHOR: Kucherov, N. I.

TITLE: The study of astroclimate

CITED SOURCE: Tsirkulyar Vsesoyuznogo astronomo-geodeticheskogo obshchestva,
no. 2, 1961, 25

TOPIC TAGS: astroclimate, sky transparency, star image

TRANSLATION: The author indicates the importance of systematic studies of astroclimate in various regions of the Soviet Union. He emphasizes the great significance of observations of the quality of star images, daytime transparency and color of the sky by amateur astronomers.

DATE ACQ: 30May63

SUB CODE: AI

ENCL: 00

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KUCHEROV, N.I., starshiy nauchnyy sotrudnik

"Oceans" of Mars in the focus of a telescope. Nauka i zhizn' 28
no.8:69-73 Ag '61. (MIRA 14:8)

1. Glavnaya astronomicheskaya observatoriya Akademii nauk SSSR v
Pulkove.

(Mars (Planet))

LYUBARSKIY, Kronid Arkad'yevich; KUCHEROV, N.I., starshiy nauchnyy
sotr., otv. red.; BRONSHTEIN, V.A., red. izd-va; YEGOROVA,
N.F., tekhn. red.

[Essays in astrobiology] Ocherki po astrobiologii. Moskva, Izd-
vo Akad.nauk SSSR, 1962. 119 p. (MIRA 15:9)
(Life on other planets) (Mars (Planet))

KUCHEROV, Nikolay Ivanovich, kand. fiziko-matem. nauk; FAYNBOYM, I.B.,
red.; RAKITIN, I.T., tekhn. red.

[Atmospheric conditions affecting observations]Astroklimat.
Moskva, Izd-vo "Znanie," 1962. 38 p. (Novoe v zhizni, nauke,
tekhnike. IX Seriya: Fizika i khimiya, no.17) (MIRA 15:11)
(Astronomy--Observations) (Meteorological optics)

KUCHEROV, Nikolay Iv.; POPOV, Al. [translator]

Practical importance of the problem of the conquest of the cosmos. Priroda Bulg 12 no. 6:34-39 N-D '63.

1. Main Astronomical Observatory in Pulkovo, U.S.S.R. (for Kucherov).

FEDOROV, Ye.P.; KUCHEROV, N.I.; BATRAKOV, Yu.V., kand.fiz.-matem.nauk;
KOSTYLEV, K.V., kand.fiz.-matem.nauk; MIKHEL'SON, N.N., kand.
fiz.-matem.nauk; GINDILIS, L.M., kand.fiz.-matem.nauk

In the Astronomic Council; conferences and plenums. Vest. AN SSSR
34 no.9:112-120 S '64. (MIRA 17:10)

1. Chlen-korrespondent AN UkrSSR (for Fedorov).

ACCESSION NR: AP4046589

S/0010/64/000/009/0113/0114

AUTHOR: Kucherov, N. I.

TITLE: Investigation of atmospheric transparency and twilight ^B

SOURCE: AN SSSR. Vestnik, no. 9, 1964, 113-114

TOPIC TAGS: terrestrial atmosphere, optical instability, atmospheric transparency, twilight, dawn, ozone, sky polarization, solar vertical, zenithal distance, satellite flight

ABSTRACT: The Commission on Optical Instability of the Terrestrial Atmosphere of the Astronomical Council held a conference at Pulkovo on 6-7 April 1964. The conference set up projects for studying the transparency of the atmosphere with systematic observations of twilight and dawn at many observations. Systematic determination of the transparency coefficient with simultaneous measurement of the stability of the atmosphere while taking ozone into consideration, are recommended. The brightness and polarization of the sky at two points on the solar vertical with zenithal distances between 70° and

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ACCESSION NR: AP4046589

80° are to be carried out with particular attention being paid to the intensity of polarization. Rocket and satellite flights will be used to study optical properties of the atmosphere.

ASSOCIATION: none

SUBMITTED: 00

ENCL: 00

REF CODE: AA

NO REF SOV: 000

OTHER: 000

Card 2/2

KUCHEROV, Nikolay I., prof.

New data about the atmosphere on the Mercury. Nauka i
tekhnol. 16 no. 4:35-39 Apr '64.

1. Director, Laboratory of Astroclimate, Pulkovo
Astronomical Observatory, U.S.S.R.

KUCHEROV, N.I., kaml. fiz.-mat. nauk, otv.red.[deceased];
MEL'NIKOV, O.A., red.; OBUKHOV, A.M., red.; DEMIDOVA,
A.N., red.; KOLCHINSKIY, I.G., red.; TATARSKIY, V.I.,
red.

[Optical instability of the earth's atmosphere] Opti-
cheskaya nestabil'nost' zemnoi atmosfery. Moskva,
Nauka, 1965. 170 p. (MIRA 18:7)

1. Akademiya nauk SSSR. Astronomicheskii sovet. 2. Chlen-
korrespondent AN SSSR (for Mel'nikov, Obukhov).

15310-66
ALC NR: 276003709
ENT(1)
GS/GW

AUTHORS: Kuchero, N. I. / (Deceased)

ORG: none

APPROVED FOR RELEASE: 03/13/2001

SOURCE CODE: UR/0000/65/000/000/0049/0059

TITLE: The effect of synoptic fronts on the quality of an image

SOURCE: AN SSSR. Astronomicheskii sovet, Opticheskaya nestabil'nost' zemnoy atmosfery (Optical instability of the earth's atmosphere). Moscow, Izd-vo Nauka, 1965, 49-59

TOPIC TAGS: atmospheric disturbance, atmospheric front, atmospheric refraction, atmospheric optical

ABSTRACT: A comparison of optical instability of the atmosphere (by means of the turbulence angle) and the mean square amplitude of light tremor of a star shows a considerable difference for different observatories. It is suggested that the variation is due to weather fronts. Observations show that the image is good (i.e., the angle of turbulence is small and stable) when frontal activity is absent; the image worsens when a frontal zone approaches; and the image improves as the frontal zone recedes. Observations were made at Chapal, Krasnyye Gory, and Privotnoye during 1961-62, and 75% of the observations attest to the above-stated relationship. Of the remaining 25%, 15% show a good image despite the presence of a front or a poor image though no front appeared to be present; 10% were doubtful examples because of

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L 15310-46

ACC NR: AT6003709

uncertain synoptic analysis. It is pointed out that the synoptic fronts were chiefly cold fronts. Turbulent movements near the surface of a warm front are less well defined than in the zone of a cold front because of the very small slope of warm fronts and of smaller horizontal temperature gradients. The author believes that the statistically demonstrated relationship sheds light on many properties of astroclimate, and he suggests that it offers some promise for locating future astronomical observatories. The author expresses his sincere thanks to L. K. Zinchenko for his help in making the synoptic analyses. Orig. art. has: 7 figures and 2 tables.

SUB CODE: 04/

SUBM DATE: 15May65/

ORIG REF: 003/

OTH REF: 003

Card 2/2 mc

KUCHEROV, N., prof.

~~Not used - not a source of information~~
Dawn nad weather. Nauka i tekhnolozhiya 16 no.1:45-48 Ja'64

1. Zavezhdasht Laboratoriata po astroklimat v Pulkovskata observatoriia.

LAYKHTMAN, D.L.; KUCHEROV, N.V.

On a method for measuring radiation flux in the atmosphere. Trudy
GGO no.37:47-49 '52. (MIRA 11:1)

(Solar radiation)

KUCHEROV, N.Y.

Method for the direct measurement of turbulent heat exchange.
Trudy GOO no.37:50-54 '52. (MIRA 11:1)
(Atmospheric turbulence)
(Soil temperature)

KUCHEROV, N.V.

Efficient circuit for resistance thermometers used in the
measurement of temperature gradients. Truly GGO no.37:55-58

'52.

(MIRA 11:1)

(Thermometry) (Atmospheric temperature)

KUCHEROV, H. V.

"Some Results From Measuring of the Turbulent Heat Stream", Tr. Gl. Geofiz. Observ., No 39, 1953, pp 257-268.

Results of Measurements of turbulent heat stream near the ground covered by low grass (in the Hunger Steppe) are presented. Measuring equipment of the Tashkent and the Main Geophysical Observatories was used. Graphs and tables are included. (RZhFiz, No 1, 1955)

SO: Sum. No. 443, 5 Apr. 55

The Committee on Stalin Prizes (of the Council of Ministers USSR) in the fields of science and inventions announces that the following scientific works, popular scientific books, and textbooks have been submitted for competition for Stalin Prizes for the years 1952 and 1953. (Sovetskaya Kultura, Moscow, No. 22-40, 20 Feb - 3 Apr 1954)

<u>Name</u>	<u>Title of Work</u>	<u>Nominated by</u>
Arbuzov, A.I.	"Ergodic Theory of the"	Min. of Education (Moscow) by
Baydakov, D.I.	Microclimate of the soil"	Prof. A.I. Vasylyev
Belin, A.A.	World Fields, The "Ergodic"	
Bukharin, N.Y.	ing and regulation" (number	
Perlyand, N. Ye.	of articles)	
Frankov, P.N.		
Timofeyev, M.		
Seleznev, V.I.		
Frankov, V.		

Doc. W-30604, " July 1954

"APPROVED FOR RELEASE: 03/13/2001

CIA-RDP86-00513R000827030011-9

APPROVED FOR RELEASE: 03/13/2001

CIA-RDP86-00513R000827030011-9"

SOV/36-56-60-10/10

AUTHOR: Kucherov, N. V.

TITLE: The Accuracy of Gradient Measurements of Temperature and Moisture
(O tochnosti gradiyentnykh izmereniy temperatury i vlazhnosti)

PERIODICAL: Trudy Glavnoy geofizicheskoy observatorii, 1956, Nr 60, pp 86-91
(USSR)

ABSTRACT: Modern investigations of processes in the near-surface layer of the atmosphere require an evaluation of the accuracy of the data obtained. Observations conducted in 1954 at Koltushi with a series of psychometers are analyzed and evaluated. There are 7 figures and 5 tables.

Card 1/1

FOR RELEASE: 03/13/2001

CIA-RDP86-00513R000827030011-9

AUTHOR: Kucherov, N. V.

TITLE: Instrument for Pyrheliometric Measurements (Pribor dlya pirgeliometricheskikh izmereniy)

PERIODICAL: Trudy Glavnoy geofizicheskoy observatorii, 1957, Nr 69, pp 100-103 (USSR)

ABSTRACT: The author states that the Angström pyrheliometer has thus far been considered standard for the majority of pyrheliometric (solar radiation) measurements. The present article describes a new simplified design of pyrheliometer tested in the physics division of the Main Geophysical Observatory. This new instrument, produced under the designation OFPS, was approved by the Central Laboratory of Gidrometsluzhba and the Actinometric Observatory at Karadag (Crimea). The strip on which the radiation falls is made of 2 mm. brass, whereas the disc (the diaphragm) is of pure copper, 4 mm. thick and 8 mm. in diameter. The disc is connected to the strip by a 1 mm. wire (the thermoelectric couple) which in turn is attached to a galvanometer (in this case the recommended type of galvanometer is the GZP-47). The entire tube with the sensitive mechanism in it is manipulated both vertically and horizontally with the help of an aerological theodolite. The observation procedure begins with cooling the diaphragm so that the temperature of the tube and the diaphragm are the same (the so-called moment of equilibrium). Then the shutter is opened to take readings. Solar radiation (S) is

Card 1/2

KUCHEROV, N V

3(7)

PHASE I BOOK EXPLOITATION

SOV/1733

Leningrad. Glavnaya geofizicheskaya observatoriya

Voprosy fiziki prizemnogo sloya vozdukh (Problems in the Physics of the Near-Surface Air Layer) Leningrad, Gidrometeoizdat, 1958, 102 p.
(Series: Its: Trudy, vyp. 77) 1,300 copies printed.

Sponsoring Agency: USSR. Glavnoye upravleniye gidrometeorologicheskoy sluzhby

Ed. (title page): D.L. Laykhtman, Doctor of Physical and Mathematical Sciences; Ed. (inside book): Yu.V. Vlasova; Tech. Ed.: A.N. Sergeyev

PURPOSE: This collection of articles is intended for scientists interested in the processes that take place in the boundary layer of the atmosphere.

COVERAGE: This publication contains 13 articles dealing with the physical processes of near-surface air masses. The research work was done in 1956. The basic work is related to the formation of hoarfrost and fog and to the effect of the condensation processes on thermal conditions. Some articles deal with the methods for measuring and computing the main meteorologic features of the near surface air masses, others with the problem of atmospheric turbulence. The articles are elucidated with charts, diagrams, and tables.

APPROVED FOR RELEASE: 03/13/2001

CIA-RDP86-00513R000827030011-9

Problems in the Physics (Cont.)

air masses, others with the problem of atmospheric turbulence. The articles are elucidated with charts, tables and diagrams. References follow each article.

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3/112/60/000/006/012/11

Translation from: Referativnyy zhurnal, Elektrotehnika, 1960, No. 6,
pp. 249-250, # 4.4816

AUTHOR: Kucherov, N. V.

TITLE: Devices for Studying the Air Layer Near the Ground

PERIODICAL: Sb. rabot po geofiz. i meteorol. metodam izmereniy i priboram,
Leningrad, 1958, pp. 56-68

TEXT: A review of methods and devices for experimental studies of meteorological elements in the surface air layer is given: 1) heat and water vapor flows; 2) radiation flows; 3) heat flows in the ground. The heat and vapor flows are measured either by the gradient method (by measuring the gradients of temperature, humidity and wind) or by the pulsation method (by measuring the pulsations of temperature, humidity and wind). Wire and semiconductor thermometers permitting telemetering of readings are recommended for measuring temperature, differences of temperature and humidity. The same thermometers are recommended for measuring pulsations of temperature, humidity and wind. A number of devices has been developed for measuring radiant fluxes: the thermoelectric

Card 1/2

3/112/60/000/006/015/032

Devices for Studying the Air Layer Near the Ground

balance meter of Yanishevskiy (in which the radiation balance is evaluated by the difference of temperatures of receiving plates directed to the ground and to the sky), the daytime pyrgeometer, the differential balance meter and the actinometer. The results of tests of these devices are given. The method of electric conductivity, radioactive methods and sondes are used for measuring the thermic data of the ground which are necessary to determine heat flows in it, humidity, heat capacity, temperature and heat conductivity. There are 9 illustrations.

V. F. R.

Card 2/2

SORKINA, A.I.; GOPTAREV, N.P.; KUCHEROV, N.V.

The technique of observing winds from the ship. Trudy GOIN
no.61:199-207 '61. (MIRA 14:10)
(Meteorology, Maritime) (Winds)

S/531/62/000/127/003/007
I053/I242

AUTHOR: Kucherov, N.V.

TITLE: The results of measurements of thermal equilibrium at the sea surface

SOURCE: Leningrad. Glavnaya geofizicheskaya observatoriya. Trudy. no. 127. 1962. Fizika prizemnogo sloya vozdukh, 82-87

TEXT: The research expeditions on the ships "Voyevkov" and "Shokalskiy" during 1959-1960 found that the water of the Black, Aegean, and Mediterranean seas is considerably transparent, has a reduced temperature, a small albedo (5-7%), a large balance of radiations (1.8 - 2.0 cal/cm²/min) and a diurnal evaporation rate reaching 3.0-3.5 mm. In the Indian Ocean (equatorial zone), the evaporation rate reaches an average of 7.4 mm (max.- 13.4 mm, min.- 4.4 mm) in 24 hours. This includes the contribution of evaporation from the adjacent air which is saturated with water drops. In the Pacific Ocean the water temperature and wind speed increase and the rate of evaporation reaches 10 mm in 24 hours. The absence of a daily

Card 1/2

S/531/62/000/127/003/007
1053/1242

The results of measurements...

evolution in the turbulent transference of heat and evaporation far from the coast (800-1000 km) is due to a slight daily change of temperature of the air near water. In order to eliminate errors, the measurements must be carried out when the wind blows in the direction of the measuring device and the latter must be placed far from the ship and its superstructure. There are 2 tables.

Card 2/2

S/531/62/000/127/004/007
I053/I242

AUTHOR: Kucherov, N.V.

TITLE: The measurement of wind speed on board ship

SOURCE: Leningrad. Glavnaya geofizicheskaya observatoriya. Trudy.
no. 127, 1962. Fizika prizemnogo sloya vozdukha, 88-92

TEXT: The results of measurement by contact anemometers (Chijevskiy type), placed in 6 different locations of the ship and on a buoy, at 100 m from the ship, are associated with large errors. On placing the anemometer on the fore-body and after-body arrows and on the yards of fore- or main masts (deviation - 10%), the precision improves and becomes sufficient when wave agitation is small and wind directions between 140° and 220° are excluded. The measurements made by an anemometer placed on the main mast and on the buoy agree within 2-3%. A method for the treatment of the experimental data and conclusions concerning the accuracy of the wind speed are given. There are 4 tables.

Card 1/1

KUCHEROV, N.V.

Gradient measurements in the open sea. Okeanologiya 3 no.1:150-156
'63. (MIRA 17:2)

1. Glavnaya geofizicheskaya observatoriya imeni A.N.Voyeykova.

ACCESSION NR: AT4004732

8/2922/63/007/000/0263/0270

AUTHOR: Kucherov, N. V.

TITLE: Meteorological and heat balance observations aboard the expeditionary ships "Voyeykov" and "Shokal'skiy"

SOURCE: Vses. nauchn. meteorologich. soveshoh. Trudy*, v. 7. Fizika prizemnogo sloya. Leningrad, 1963, 263-270

TOPIC TAGS: meteorology, atmospheric physics, E. S. Voyeykov, S. S. Shokal'skiy, thermal equilibrium, hydrometeorology, oceanic research ship, research ship observation, research ship instrumentation, geophysical instrumentation, hydrometeorological instrumentation, temperature, humidity, wind velocity, radiation

ABSTRACT: The article describes the data obtained during voyages of the two expeditionary ships "Voyeykov" and "Shokal'skiy" from Odessa to Vladivostok in 1959-1960. Both research ships are identical and were constructed for the Gidrometeorologicheskoye

Card 1/4

ACCESSION NR: A14004732

upravleniye (Hydrometereological Service) to be used for aerometereological and oceanological investigations in the Pacific Ocean. Equipment for measurement of temperature, humidity, temperature and humidity gradients, precipitation, and actinometric data was mounted at levels of 8, 10, and 18 meters above the water level and connected by cables to a central control room. Measurements were taken at three-hour intervals by a crew of four men and telegraphed to either Odessa or Vladivostak. The components of the heat balance equation were found as follows: from the temperature gradient and humidity of the air and from the wind velocity and temperature gradient of the sea surface, the turbulence coefficient K was calculated using M. P. Timofeyev's formula. The evaporation losses were found from the vapor pressure difference Δe between the levels of 0.5 and 2 meters. The magnitude of Δe was determined from the logarithmic distribution of $e_0 - e_x$ with height above the surface from 4 to 1800 cm. The radiative balance was measured by a balance meter of the Yanishevsky type. The heat flow from atmosphere to water was calculated from the heat balance equation. The daily measurements of the components of the heat balance are tabulated. From this data it was determined that the major portion of radiative energy was used for heating of water and that the large amounts of evaporation

2/4

Card

ACCESSION NR: AT4004732

were due to an increase in effective surface area of water when the sea was perturbed by wind. It was established that the daily evaporation level was independent of the turbulent heat exchange; the daily radiation level ($P \approx 0$) as well as the surface water temperature depended mainly upon the wind velocity. The daily average variation of the heat balance factors was evaluated and is shown in Fig. 1 of the Enclosure. The precipitation data were scarce and inconclusive. It was concluded, however, that temperature-sensitive instruments such as psychrometers and thermometers should be mounted away from the ship's body on a mast, for example, in order to minimize errors in gradient measurements caused by heat radiated from the ship's body. Use of a raft for this purpose was recommended. Org. art. has: 3 tables and 3 figures.

ASSOCIATION: GGO

SUBMITTED: 00

SUB CODE: ES

DATE ACQ: 27Dec63

NO REF SOV: 000

ENCL: 01

OTHER: 000

Cord 3/4

ACCESSION NR: AT4004732

CAL/CM²-DAY

ENCLOSURE: 01

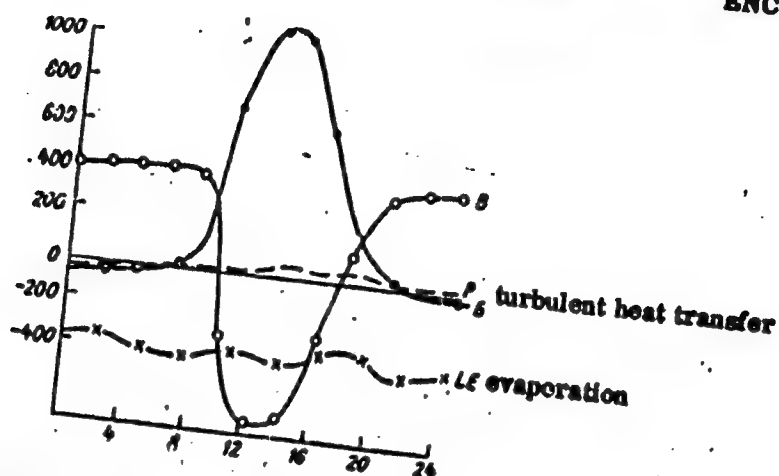


Fig. 1. Average daily variation of the heat balance components.

Card 4/4

1000 P.V., N.V.

Measuring the current & intensity of vent. Every 6' to 14'.

14/ '04.

1000 P.V.

KUCHEROV, N.V.

Results of experimental studies of the heat balance of the sea.
Meteor. issl. no.9:163-166 '65. (MIRA 19:1)

L 14174-66 EWT(1)/FCC GW

ACC NR: AT6004160

SOURCE CODE: UR/2531/65/000/167/0168/0170

AUTHOR: Kucherov, N. V.

ORG: Main Geophysical Observatory, Leningrad (Glavnaya geofizicheskaya observatoriya) 24
B11

TITLE: Data from measurements of tangential wind stress

SCURCE: Leningrad. Glavnaya geofizicheskaya observatoriya. Trudy, no. 1, 1965. Fizika pogranichnogo sloya atmosfery (Physics of the boundary layer of the atmosphere), 168-170 12.44.55

TOPIC TAGS: wind, meteorology

ABSTRACT: The author gives data from measurements of tangential wind stress in the summer of 1963 on Cape Kherson. 19 series of hourly readings were taken from 31 July to 11 August. A table is given comparing theoretical and experimental values for the dynamic velocity and tangential wind stress. The results show a random divergence between the dynamic velocities calculated from direct measurements of tangential stress and those calculated from data on gradient measurements. Considerable

Card 1/2

2

L 11174-66

ACC NR: AT6004160

divergences which were observed may be explained by the variable wind which some-
times changed in direction by 180° in an hour. The average error, excepting one
period of particular instability in wind direction, is $\pm 8\%$. The results of direct
measurements on tangential wind stress show that these measurements are sufficiently
reliable for calculating the dynamic wind velocity. Orig. art. has: 1 figure, 1
table, 1 formula.

SUB CODE: 08/ SUBM DATE: 00/ ORIG REF: 000/ OTH REF: 000

Card 2/2

25(2)

PHASE I BOOK EXPLOITATION

307/636

Novyye mashiny; sbornik stat' o novykh mashinakh, motorakh, apparatakh i soderzhatel'nykh predpriyatiyakh v period 1956-1958 gg. (New Machines; Collection of Articles on New Machines, Motors, and Apparatus Made in Dnepropetrovsk From 1956 to 1958) / Dnepropetrovsk: Dnepropetrovskye oblastnyye izd-vo, 1959. 228 p. 8,000 copies printed.

Compilers: P.I. Zengul, Scientific Ed.: V.A. Belashov (Chief Engineer, Dnepropetrovsk Electromechanical Plant), A.A. Rudakov (Candidate of Technical Sciences, Deputy) L.A. Shumakov (Chief Engineer, Dnepropetrovsk Turbine Plant, and Corresponding Member, Ukrainian Academy of Sciences); Ed.: Ye.Ye. Donskoy, Tech. Ed.: M.A. Shvachko.

NOTE: This collection of articles is to acquaint the reader with the latest developments and attainments of the Dnepropetrovsk machinery manufacturing industry during the 1956-58 period.

CONTENTS: The book, prepared in the form of a descriptive catalog, presents the latest information on machinery and equipment manufactured by Dnepropetrovsk plants from 1956-58. A detailed description is given of the following machines and equipment: steam turbines, turbines, machine tools, diesel engines, diesel locomotives, machine tools, machine tools, metal-cutting machines, conveyors, road building machinery, electric power generators, and electrical and electronic instruments. Numerous photographs of the above-listed machinery and equipment are included in the book. No personnel are mentioned. There are no references.

TABLE OF CONTENTS:

Zengul, P.I., Director of the Machinery Manufacturing Division of the Dnepropetrovsk Oblast Committee of the Ukrainian Communist Party. On the Path to Further Technological Progress 3

Yakubov, A.I., Vice Chairman of the Secretariat of the Dnepropetrovsk Regional Administrative Region. New Technology as a Powerful Lever for the Growth of Labor Productivity 13

Card 2/6

New Machines; Collection of Articles (Cont.)

307/636

- / Rudakov, A.A., Director of the Dnepropetrovsk Electrical Instruments Plant, and A.Ye. Slagovitskiy, Head of the Control Plant Laboratory. Quiet-response Automatic [Devices] 199
- / Rudakov, A.A., Director of the Dnepropetrovsk "Electrostand" New Products Manufactured by the "Electrostand" Plant 205
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AVAILABLE: Library of Congress

Card 6/6

20/63
6-6-59

KUCHAROV, P.M.; BYKOV, L.T.; KAMPUZIDI, K.S.; MERLIN, V.M.; KUNITSA, N.K.;
~~KAL'YANOVA, M.L.~~; PARSHIN, M.I.

Experience with the prevention of tularemia during an extensive epizootic outbreak in rodents. Zhur. mikrobiol. epid. i immun. 29 no.8:3-7 Aug '58.
(MIRA 11:10)

1. Iz Ural'skoy protivochumnyy stantsii i Rostovskogo protivochumnogo instituta,

(TULAREMIA, prevention and control,
during extensive epizootic outbreak in rodents (Rus))

PLATE I NEW EXPLANATION 200/345

Donskoy, Ya. Ye., G.I. Kirilash, and I.P. Lyubskiy, eds.

Mezhdunarodnyy i avtomatizatsionnyy sbornik statey ob otkrytiyakh v mekhanizatsii i avtomatizatsii na Kharkovskikh mashinostroyatelnykh i avtomobilnykh (Mechanization and Automation: Collection of Articles on the Introduction of Mechanization and Automation in Kharkov Machinery-Manufacturing Plants) (Kharkov) Kharkovskoye Mashinostroyatel'noye, 1960. 375 p. 3,000 copies printed.

Editorial Board: S.A. Vorob'yev, Candidate of Technical Sciences; Chairman of the Editorial Board; P.I. Zhurav, Engineer; A.A. Lukin, Engineer; V.I. Kuznetsov, Engineer; A. Ye. Leonov, Doctor; A.I. Pavlov, Candidate of Technical Sciences; and S.M. Shkur, Candidate of Technical Sciences; Eds.: Ya. Ye. Donskoy, G.I. Kirilash, and I.P. Lyubskiy, Tech. Eds.: A.I. Kiseleva.

PREFACE: This collection of articles is intended for technical and scientific personnel, outstanding workers, and stock workers of communist labor.

CONTENTS: The multifaceted experience of Kharkov enterprises in the mechanization, automation, and improvement of manufacturing processes is generalized. The development of new machines, instruments, and production methods is considered and attention is given to newly established enterprises, and to the introduction of telemechanics in the Kharkov gas-system management. By including concrete examples and facts, the authors of the various articles attempt to demonstrate the achievements of the Kharkov industrial complex in fulfilling the resolutions of the June (1959) and July (1960) Plenums of the Central Committee of the Communist Party of the Soviet Union. No prepossessions are mentioned. There are no references.

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KUCHEROV, P. S.

ROZENBERG, B. L.

Machinery for cutting, breaking, haulage and transportation of coal; program and methodological instructions Khar'kov, Gos. nauchno-tekhn. izd-vo Ukrainy, 1934. 72 p. (TSentral'nyi zaochnyi gornyi institut. Seriya dlia povysheniia kvalifikatsii ITR kamennougol'noi promyshlennosti) (51-47771)

KUCHEROV, P. S.

KUCHEROV, P. S. The operator of a heavy cutting machine. Moskva. Gosstattekhizdat,
1944. 104 p. (V pomoshch' novym kadram ugol'noi promyshlennosti) (50-53202)

TN813.K8

KUCHEROV, P.S.

Theory of electric pneumatic percussion tools of the Fein-Verner type.
Zap.Inst.gor.mekh. AN USSR no.5:52-65 '47. (MIRA 8:4)

1. Chlen-korrespondent Akademii nauk USSR.
(Pneumatic tools)

KUCHEROV, P.S.

~~SECRET~~
Theoretical investigation and method for calculating the parameters
of electromechanical crank-rod pick hammers. Zap.Inst.gor.mekh.AN
USSR no.5:66-78 '47. (MIRA 8:4)

1. Chlen-korrespondent Akademii nauk SSSR,
(Mining machinery)

KUCHEROV, P.S.

Theory of flexible-hose pneumatic hammer design. Zap.Inst. gor.
mekh. AN URSR no.6:3-12 '48. (MIRA 8:4)

1. Chlen-korrespondent Akademii nauk USSR.
(Pneumatic tools)

KUCHEROV P. S.

181T81

USSR/Mining - Coal

Jul 50

"Progress of Soviet Coal Mining Technique," P. S.
Kucherov, Corr Mem, Acad Sci Ukrainian SSR

"Visnyk Ak Nauk Ukrains'koy RSR" No 7, pp 21-30

Generally reviews improvements in methods of coal
mining, mainly in Donets Basin. Briefly outlines
mechanization of mining operations and development
of Stakhanov method.

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181T81

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1951

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204T72

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(Mine hoisting)

21-4-7/24

AUTHOR: Kuchеров, P.S., Corresponding Member of the Ukrainian Academy of Sciences

TITLE: Criterion of Rock Viscosity (Kryteriy v'yaskosti hirs'kykh porid)

PERIODICAL: Iopovidy Akademii Nauk Ukrainy's'koi RSR, 1957, #4, pp 348-349 (USSR)

ABSTRACT: Instead of empirical coefficients of rock viscosity presently used, the author suggests to employ two physical quantities for the quantitative estimation of the elastic imperfection of rocks; namely:

μ - modulus of viscosity, which expresses the pressure on the unit area resulting in a viscous flow of matter with a relative speed of 1/sec,

θ - coefficient of elastic imperfection, which expresses the ratio between the viscous component of relative deformation ϵ_B and total deformation ϵ .

The following differential equation is derived:

$$\frac{d\sigma}{dt} + A\sigma = B \frac{d\epsilon}{dt}$$

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TITLE:

Criterion of Rock Viscosity (Kryteriy v'yaskosti hirs'kykh porid)
 where the coefficients A and B are connected with μ and θ as follows:

$$\theta = 1 - \frac{E}{B}; \quad \mu = \theta \frac{B}{A}$$

They can be determined from the results of two series of experiments, in the first of which $E = \text{const}$ and the second $\sigma = \text{const}$.

No references are cited.

INSTITUTION: Institute of Mining Engineering

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SUBMITTED: 19 November 1956

AVAILABLE: At the Library of Congress

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